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DPS

Residential Energy Conservation Code

Introduction

Montgomery County has adopted and is currently enforcing the 2009 Edition of the International Energy Conservation Code (IECC). The IECC replaces Chapter 11 of the International Residential Code. All permit applications submitted after July 19, 2010 shall comply with the provisions of the IECC.

A. Applicability

Existing buildings and historic designated buildings are exempt from these codes. New work in alterations, change of occupancy, renovations or repairs must comply with the requirements of these codes without creating or extending any nonconformity in the existing building related to energy efficiency, including the capacity of the mechanical systems. Unconditioned additions separated from the existing building by building thermal envelope assemblies are exempted from complying with the building envelope requirements. A conditioned addition alone must comply with the code requirements; alternatively, the existing building and addition can comply with code requirements as one building. Section 101.4.3 of IECC lists a few exceptions provided that the energy use of the building is not increased.

General Definitions

ABOVE-GRADE WALL. A wall more than 50 percent above grade and enclosing conditioned space. This includes between-floor spandrels, peripheral edges of floors, roof and basement knee walls, dormer walls, gable end walls, walls enclosing a mansard roof and skylight shafts.

ACCESSIBLE. Admitting close approach as a result of not being guarded by locked doors, elevation or other effective means (see “Readily accessible”).

ADDITION. An extension or increase in the conditioned space floor area or height of a building or structure.

AIR BARRIER. Material(s) assembled and joined together to provide a barrier to air leakage through the building envelope. An air barrier may be a single material or a combination of materials.

ALTERATION. Any construction or renovation to an existing structure other than repair or addition that requires a permit. Also, a change in a mechanical system that involves an extension, addition or change to the arrangement, type or purpose of the original installation that requires a permit.

APPROVED. Approval by the code official as a result of investigation and tests conducted by him or her, or by reason of accepted principles or tests by nationally recognized organizations.

AUTOMATIC. Self-acting, operating by its own mechanism when actuated by some impersonal influence, as, for example, a change in current strength, pressure, temperature or mechanical configuration (see “Manual”).

BASEMENT WALL. A wall 50 percent or more below grade and enclosing conditioned space.

BUILDING. Any structure used or intended for supporting or sheltering any use or occupancy.

BUILDING THERMAL ENVELOPE. The basement walls, exterior walls, floor, roof, and any other building element that enclose conditioned space. This boundary also includes the boundary between conditioned space and any exempt or unconditioned space.

C-FACTOR (THERMAL CONDUCTANCE). The coefficient of heat transmission (surface to surface) through a building component or assembly, equal to the time rate of heat flow per unit area and the unit temperature difference between the warm side and cold side surfaces (Btu/h ft^2 × °F) [W/(m^2 × K)].

CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative.

COMMERCIAL BUILDING. For this code, all buildings that are not included in the definition of “Residential buildings.”

CONDITIONED FLOOR AREA. The horizontal projection of the floors associated with the conditioned space.

CONDITIONED SPACE. An area or room within a building being heated or cooled, containing uninsulated ducts, or with a fixed opening directly into an adjacent conditioned space.

CRAWL SPACE WALL. The opaque portion of a wall that encloses a crawl space and is partially or totally below grade.

CURTAIN WALL. Fenestration products used to create an external nonload-bearing wall that is designed to separate the exterior and interior environments.

DAYLIGHT ZONE.

1. Under skylights. The area under skylights whose horizontal dimension, in each direction, is equal to the skylight dimension in that direction plus either the floor-to- ceiling height or the dimension to a ceiling height opaque partition, or one-half the distance to adjacent skylights or vertical fenestration, whichever is least.

2. Adjacent to vertical fenestration. The area adjacent to vertical fenestration which receives daylight through the fenestration. For purposes of this definition and unless more detailed analysis is provided,

the daylight zone depth is assumed to extend into the space a distance of 15 feet (4572 mm) or to the nearest ceiling height opaque partition, whichever is less. The daylight zone width is assumed to be the width of the window plus 2 feet (610 mm) on each side, or the window width plus the distance to an opaque partition, or the window width plus one-half the distance to adjacent skylight or vertical fenestration, whichever is least.

DEMAND CONTROL VENTILATION (DCV). A ventilation system capability that provides for the automatic reduction of outdoor air intake below design rates when the actual occupancy of spaces served by the system is less than design occupancy.

DUCT. A tube or conduit utilized for conveying air. The air passages of self-contained systems are not to be construed as air ducts.

DUCT SYSTEM. A continuous passageway for the transmission of air that, in addition to ducts, includes duct fittings, dampers, plenums, fans and accessory air-handling equipment and appliances.

DWELLING UNIT. A single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

ECONOMIZER, AIR. A duct and damper arrangement and automatic control system that allows a cooling system to supply outside air to reduce or eliminate the need for mechanical cooling during mild or cold weather.

ECONOMIZER, WATER. A system where the supply air of a cooling system is cooled indirectly with water that is itself cooled by heat or mass transfer to the environment without the use of mechanical cooling.

ENERGY ANALYSIS. A method for estimating the annual energy use of the proposed design and standard reference design based on estimates of energy use.

ENERGY COST. The total estimated annual cost for purchased energy for the building functions regulated by this code, including applicable demand charges.

ENERGY RECOVERY VENTILATION SYSTEM. Systems that employ air-to-air heat exchangers to recover energy from exhaust air for the purpose of preheating, precooling, humidifying or dehumidifying outdoor ventilation air prior to supplying the air to a space, either directly or as part of an HVAC system.

ENERGY SIMULATION TOOL. An approved software program or calculation-based methodology that projects the annual energy use of a building.

ENTRANCE DOOR. Fenestration products used for ingress, egress and access in nonresidential buildings, including, but not limited to, exterior entrances that utilize latching hardware and automatic closers and contain over 50-percent glass specifically designed to withstand heavy use and possibly abuse.

EXTERIOR WALL. Walls including both above-grade walls and basement walls.

FAN BRAKE HORSEPOWER (BHP). The horsepower delivered to the fan's shaft. Brake horsepower does not include the mechanical drive losses (belts, gears, etc.).

FAN SYSTEM BHP. The sum of the fan brake horsepower of all fans that are required to operate at fan system design conditions to supply air from the heating or cooling source to the conditioned space(s) and return it to the source or exhaust it to the outdoors.

FAN SYSTEM DESIGN CONDITIONS. Operating conditions that can be expected to occur during normal system operation that result in the highest supply fan airflow rate to conditioned spaces served by the system.

FAN SYSTEM MOTOR NAMEPLATE HP. The sum of the motor nameplate horsepower of all fans that are required to operate at design conditions to supply air from the heating or cooling source to the conditioned space(s) and return it to the source or exhaust it to the outdoors.

FENESTRATION. Skylights, roof windows, vertical windows (fixed or moveable), opaque doors, glazed doors, glazed block and combination opaque/glazed doors. Fenestration includes products with glass and nonglass glazing materials.

F-FACTOR. The perimeter heat loss factor for slab-on-grade floors (Btu/h × ft × °F) [W/(m × K)].

HEAT TRAP. An arrangement of piping and fittings, such as elbows, or a commercially available heat trap that prevents thermosyphoning of hot water during standby periods.

HEATED SLAB. Slab-on-grade construction in which the heating elements, hydronic tubing, or hot air distribution system is in contact with, or placed within or under, the slab.

HIGH-EFFICACY LAMPS. Compact fluorescent lamps, T-8 or smaller diameter linear fluorescent lamps, or lamps with a minimum efficacy of:

1. 60 lumens per watt for lamps over 40 watts,

2. 50 lumens per watt for lamps over 15 watts to 40 watts, and

3. 40 lumens per watt for lamps 15 watts or less.

HUMIDISTAT. A regulatory device, actuated by changes in humidity, used for automatic control of relative humidity.

INFILTRATION. The uncontrolled inward air leakage into a building caused by the pressure effects of wind or the effect of differences in the indoor and outdoor air density or both.

INSULATING SHEATHING. An insulating board with a core material having a minimum R-value of R-2.

LABELED. Equipment, materials or products to which have been affixed a label, seal, symbol or other identifying mark of a nationally recognized testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of the production of the above-labeled items and whose labeling indicates either that the equipment, material or product meets identified standards or has been tested and found suitable for a specified purpose.

LISTED. Equipment, materials, products or services included in a list published by an organization acceptable to the code official and concerned with evaluation of products or services that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services and whose listing states either that the equipment, material, product or service meets identified standards or has been tested and found suitable for a specified purpose.

LOW-VOLTAGE LIGHTING. Lighting equipment powered through a transformer such as a cable conductor, a rail conductor and track lighting.

MANUAL. Capable of being operated by personal intervention (see “Automatic”).

NAMEPLATE HORSEPOWER. The nominal motor horsepower rating stamped on the motor nameplate.

PROPOSED DESIGN. A description of the proposed building used to estimate annual energy use for determining compliance based on total building performance.

READILY ACCESSIBLE. Capable of being reached quickly for operation, renewal or inspection without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders or access equipment (see “Accessible”).

REPAIR. The reconstruction or renewal of any part of an existing building.

RESIDENTIAL BUILDING. For this code, includes R-3 buildings, as well as R-2 and R-4 buildings three stories or less in height above grade.

ROOF ASSEMBLY. A system designed to provide weather protection and resistance to design loads. The system consists of a roof covering and roof deck or a single component serving as both the roof covering and the roof deck. A roof assembly includes the roof covering, underlayment, roof deck, insulation, vapor retarder and interior finish.

R-VALUE (THERMAL RESISTANCE). The inverse of the time rate of heat flow through a body from one of its bounding surfaces to the other surface for a unit temperature difference between the two surfaces, under steady state conditions, per unit area ($h \times ft^2 \times °F/Btu$) [$(m^2 \times K)/W$].

SCREW LAMP HOLDERS. A lamp base that requires a screw-in-type lamp, such as a compact-fluorescent, incandescent, or tungsten-halogen bulb.

SERVICE WATER HEATING. Supply of hot water for purposes other than comfort heating.

SKYLIGHT. Glass or other transparent or translucent glazing material installed at a slope of 15 degrees (0.26 rad) or more from vertical. Glazing material in skylights, including unit skylights, solariums, sunrooms, roofs and sloped walls is included in this definition.

SLEEPING UNIT. A room or space in which people sleep, which can also include permanent provisions for living, eating, and either sanitation or kitchen facilities but not both. Such rooms and spaces that are also part of a dwelling unit are not sleeping units.

SOLAR HEAT GAIN COEFFICIENT (SHGC). The ratio of the solar heat gain entering the space through the fenestration assembly to the incident solar radiation. Solar heat gain includes directly transmitted solar heat and absorbed solar radiation which is then reradiated, conducted or convected into the space.

STANDARD REFERENCE DESIGN. A version of the proposed design that meets the minimum requirements of this code and is used to determine the maximum annual energy use requirement for compliance based on total building performance.

STOREFRONT. A nonresidential system of doors and windows mulled as a composite fenestration structure that has been designed to resist heavy use. Storefront systems include, but are not limited to, exterior fenestration systems that span from the floor level or above to the ceiling of the same story on commercial buildings.

SUNROOM. A one-story structure attached to a dwelling with a glazing area in excess of 40 percent of the gross area of the structure's exterior walls and roof.

THERMAL ISOLATION. Physical and space conditioning separation from conditioned space(s). The conditioned space(s) shall be controlled as separate zones for heating and cooling or conditioned by separate equipment.

THERMOSTAT. An automatic control device used to maintain temperature at a fixed or adjustable set point.

U-FACTOR (THERMAL TRANSMITTANCE). The coefficient of heat transmission (air to air) through a building component or assembly, equal to the time rate of heat flow per unit area and unit temperature difference between the warm side and cold side air films (Btu/h × ft^2 × °F) [W/(m^2 × K)].

VENTILATION. The natural or mechanical process of supplying conditioned or unconditioned air to, or removing such air from, any space.

VENTILATION AIR. That portion of supply air that comes from outside (outdoors) plus any recirculated air that has been treated to maintain the desired quality of air within a designated space.

ZONE. A space or group of spaces within a building with heating or cooling requirements that are sufficiently similar so that desired conditions can be maintained throughout using a single controlling device.

B. Montgomery County Climate Zone

The code establishes many requirements such as wall and roof insulation *R*-values, window and door thermal *U*-factors as well as provisions that affect the mechanical systems based upon the climate where the building is located. Montgomery County is in Climate Zone 4A. The table below represents the thermal criteria for Montgomery County:

Climate Zone/Major Climate	Thermal Criteria	
	IP Units	SI Units
4A	CDD50°F ≤4500 and HDD65°F≤5400	CDD10°C≤2500 and HDD18°C3000

For SI: °C = [°F-32]/1.8

C. Methods of Compliance

The codes address the design of energy-efficient building envelope (consisting of roof/ceiling, walls, floors, foundation assemblies that surround the conditioned space) and the selection and installation of energy efficient mechanical and service water heating. The building envelope requirements are addressing insulation, fenestration and air leakage.

Method 1, (Prescriptive-two options)
The simplest and the most direct, requires compliance with sections 401, 402.4, 402.5, 403.1, 403.2.2, 403.3.2.3 and 403.3 through 403.9 (mandatory provisions) and sections 402.1 through 402.3, 403.2.1 and 404.1 (prescriptive). In computing the requirements for this method either 401.1.3 (U-Factor alternative) or 402.1.4 (Total UA alternative) can be used.

Method 2, Total UA Alternative

Method 3, Simulated Performance Alternative

D. Mandatory Requirements for Both Methods

Air Leakage

Building thermal envelope. The building thermal envelope shall be durably sealed to limit infiltration. The sealing methods between dissimilar materials shall allow for differential expansion and contraction. The following shall be caulked, gasketed, weatherstripped or otherwise sealed with an air barrier material, suitable film or solid material:

1. All joints, seams and penetrations.
2. Site-built windows, doors and skylights.
3. Openings between window and door assemblies and their respective jambs and framing.
4. Utility penetrations.
5. Dropped ceilings or chases adjacent to the thermal envelope.
6. Knee walls.
7. Walls and ceilings separating a garage from conditioned spaces.
8. Behind tubs and showers on exterior walls.
9. Common walls between dwelling units.
10. Attic access openings.
11. Rim joist junction.
12. Other sources of infiltration.

402.5 Maximum fenestration *U*-factor and SHGC (Mandatory). The area-weighted average maximum fenestration *U*-factor permitted using trade-offs from Section 402.1.4 or 404 shall be 0.48 in Zone 4 for vertical fenestration, and 0.75 in Zone 4 for skylights.

Systems (Heating and Cooling & service water Heating)

Heating and Cooling Equipment Controls. At least one pre-programmed programmable thermostat is required when using a forced air system. Separate thermostats are required for each heating/cooling zone in the dwelling.

Duct Insulation. Supply and return ducts located outside the thermal building envelope shall be insulated to an R-8. Ducts in floor trusses can be insulated to an R-6.

Duct Sealing. All ducts, air handlers, filter boxes, and building cavities must be sealed. Joints and seams shall comply with and M1601.4.1 IRC.

Mechanical System Piping Insulation. R-2 for piping carrying fluids at > 105 °F or < 55 °F is required.

Mechanical Ventilation. Outdoor air intakes or exhausts shall have dampers.

Service Water Heating

Piping in the circulating hot water system shall be insulated to an R-2 and system to include manual or automatic switch that can turn off the system when it is not used, water heaters with pipe risers shall have heat traps on both inlet and outlet of water heater unless the water heater has integral heat traps or is part of a circulation system. Typical methods used for creating heat traps are “U” or “rams horn” bends in the flexible pipe connectors or installing aftermarket pipe nipples with integral traps.

EQUIPMENT SIZING
Heating and cooling equipment shall be sized based on building loads calculated in accordance with ACCA (Air Conditioning Contractors of America) Manual-J, a simplified method of calculating heating and cooling loads. The Manual-J calculations must be submitted upon application for the mechanical permit only.

Section 302.1 of IECC specifies the interior design temperatures used for heating and cooling load calculations as maximum of 72°F (22°C) for heating and minimum of 75°F (24°C) for cooling.

E. Plan Submittal Requirements

Method 1

Compliance with PRESCRIPTIVE COMPONENT REQUIREMENTS

Based on R-Values or U-factors

1. The exact location of the building thermal envelope shall be marked out on the plans, details, and cross-sections.

2. Provide all insulation R-values or U-factors, materials, and locations to be installed (walls, ceilings, cantilever floors, floors over garage, crawl space, basement walls, etc.). Per Tables: 402.1.1 or 402.1.3 or 402.2.5 for Steel-Framed construction.

2. Provide all fenestration U factors for all glazing for each window and door per Table 402.1.1 (schedule supplied by designer).

3. Provide details on how all areas listed in Section 402.4.2 (table) will be protected against air leakage.

4. Indicate if crawlspace(s) are conditioned or vented, must have vapor barrier if conditioned.

5. Indicate duct insulation R-values, minimum R-6, R-8 in attics.

6. Indicate duct sealing methods per IRC M1601.4.1. [1]

[1] Section 103.2 Information on Construction Documents. “Details shall include...Insulation materials and R-values, fenestration U-factors, area-weighted U-factor calculations, mechanical system design criteria, mechanical and service water heating system and equipment types sizes and efficiencies, equipment and system controls, duct sealing, duct and pipe insulation and locations, lighting fixture schedule with wattage and control narrative, and air sealing details.”

The information required in points 1 and 2 can be summarized on worksheets located on page 2 for R-values or on page 3 for U-factors. The rest of the information can be captured as on the drawings, in schedules, notes, and other supplementary worksheets or calculations.

When a mechanical permit is required for installation of HVAC equipment, the applicant for mechanical permit must provide the ACCA Manual J 8th edition calculation package for the HVAC Equipment Sizing.

PRESCRIPTIVE Requirements WORKSHEET (R-Values)

Applicant Name_____
Date_____
Applicant Address _____
Phone Number _____
Building Address _____Permit (A/P) # _____

Criteria		Required	Provided	Assembly Description
Windows/Doors - Maximum U-Factor	U Factor	.35		
Skylights - Maximum U-Factor		.60		
Ceilings	R-value	R-38		
Walls (wood framing)		R-13		
Mass Walls		**R-5/10		
Basement Walls		*R-10/13		
Floors		R-19		
Slab perimeter- R-value and Depth		R-10, 2ft		
Crawlspace		*R-10/13		

Insulation material used in layers, such as framing cavity insulation and insulating sheathing, shall be summed to compute the component R-value.
***The first R-value** applies to continuous insulation, the second to framing cavity insulation. "10/13 means R-10 continuous insulated sheathing on the interior or exterior of the home or R-13 cavity insulation on the interior of the basement wall."
****The second R-value** applies when more than half the insulation is on the interior of the mass wall.

□ **Thermally Isolated Sunroom**, **Check box if applicable**.

Minimum Ceiling R-Value for Sunroom (R-19)
Minimum Wall R-Value (R-13)

New wall(s) separating a sunroom from conditioned space shall meet the building thermal envelope requirements.

I hereby certify that the building design represented in the attached construction documents has been designed to meet or exceed the requirements of: [2]

□ 2009 Edition International Energy Conservation Code (IECC)

_____ _____ _____
Builder/Designer/Contractor Company Name Date

[2] Section 103.3.1 "Documents shall be endorsed and stamped *"Reviewed for Code Compliance."* Section 103.3.3 provides provision for *Phased Approval*. "The code official shall have the authority to issue a permit for the construction of part of an energy conservation system before the construction documents for the entire system have been submitted or approved, provided adequate information and detailed statements have been filed complying with all pertinent requirements of this code. The holders of such permit shall proceed at their own risk without assurance that the permit for the entire energy conservation system will be granted."

PRESCRIPTIVE Requirements WORKSHEET (U-factors)

Applicant Name _____
Date_____
Applicant Address
_____
Phone Number _____
Building Address _____ Permit (A/P) # _____

Criteria	Required	Provided	Assembly Description
Fenestration	.35		
Skylight	.60		
Ceilings	.030		
Frame Wall	.082		
Mass Wall	.141		
Floor	.047		
Basement Wall	.059		
Crawl Space Wall	.065		

GLAZING U-FACTORS must be tested and documented by the manufacturer in accordance with the National Fenestration Rating Council (NFRC 100) test procedure or taken from the Default Tables 303.1.3(1) and 303.1.3(2) in the 2009 IECC, Chapter 3. Non-fenestration U-factors must be determined from measurement, calculation, or approved sources for each component

I hereby certify that the building design represented in the attached construction documents has been designed to meet or exceed the requirements of:
□ 2009 Edition International Energy Conservation Code (IECC)

_____ _____ _____
Builder/Designer/Contractor Company Name Date

Method 2, Total UA Alternative

Compliance with PRESCRIPTIVE COMPONENT REQUIREMENTS

Based on R-Values or Based on U-factors

Provide all information as outlined in points 1 to 6 of Method 1. The worksheet starting on page 6 can be used to show compliance.

Alternately, provide a copy of the REScheck calculations. The submitted REScheck printout shall show all of the following specific information: orientation of each individual wall; insulation types, R-values and whether continuous or cavity; accurate square footage; and accurate window and door sizes and the specific wall in which they are located, along with the U factor.

Builders who have model house plans shall provide the worst case orientation for the REScheck (based on the orientation of the exterior walls). Subsequent submissions will indicate if each proposed building exceeds the worst case scenario or new REScheck calculations shall be provided with the application.

If the total *building thermal envelope* UA (sum of *U*-factor times assembly area) is less than or equal to the total UA resulting from using the *U*-factors in Table 402.1.3 (multiplied by the same assembly are as in the proposed building), the building shall be considered in compliance with Table 402.1.1. The UA calculation shall be done using a method consistent with the ASHRAE *Handbook of Fundamentals* and shall include the thermal bridging effects of framing materials.

REScheck™

Montgomery County accepts RESCheck™ program as a tool for energy code compliance. The RESCheck™ program can be downloaded at www.energycodes.gov. An online version of RESCheck™ (RESCheck Web) can be utilized without having to download or install any software on your computer. A Montgomery County approved report can be printed after entering required information. Before printing the report choose the correct code approved by Montgomery County (2009 IECC) and then print.

Method 1 – Total UA Alternative Worksheet

Applicant Name_____
Date_____
Applicant Address _____
Phone Number _____
Building Address _____ Permit (A/P) # _____

EXTERIOR WALL ASSEMBLY					
Component	Description	R-Value	U-Factor U=1/R	Area (ft^2)	AxU
Wall 1					
Wall 2					
Ceiling 1					
Ceiling 2					
Door 1					
Door 2					
Other					
Total					
Uo	Overall Uo for exterior wall = (AxU) total ÷ A total	Uo			

□ Meets Code □ Does not meet code

FLOOR ASSEMBLY					
Component	Description	R-Value	U-Factor U=1/R	Area (ft^2)	AxU
Floor 1					
Floor 2					
Other					
Total					
Uo	Overall Uo for floor assembly = (AxU) total ÷ A total	Uo			

□ Meets Code □ Does not meet code

ROOF/CEILING ASSEMBLY					
Component	Description	R-Value	U-Factor U=1/R	Area (ft^2)	AxU
Ceiling 1					
Ceiling 2					
Other					
Total					
Uo	Overall Uo for Roof/Ceiling assembly = (AxU) total ÷ A total	Uo			

□ Meets Code □ Does not meet code

BASEMENT WALL ASSEMBLY					
Component	Description	R-Value	U-Factor U=1/R	Area (ft^2)	AxU
Basement Wall					

□ Meets Code □ Does not meet code

CRAWLSPACE WALL ASSEMBLY					
Component	Description	R-Value	U-Factor U=1/R	Area (ft^2)	AxU
Crawlspace Wall					

□ Meets Code □ Does not meet code

OVERALL ENVELOPE CONFORMANCE					
Assembly	Uo	Urequired	TOTAL AREA	AxUo	AxUrequired
Exterior wall					
Floor					
Roof/Ceiling					
Total (AxUo)					
Total (AxU required)					

If the Total AxUo is less than the Total AxU required the building complies with the IECC even though the individual components do not. Basement and crawl space walls must meet the requirements of the basic requirement table above.

I hereby certify that the building design represented in the attached construction documents has been designed to meet the requirements of:
□ 2009 Edition International Energy Conservation Code (IECC)

_____ _____ _____
Builder/Designer/Contractor Company Name Date

Method 3

Compliance with PERFORMANCE
REQUIREMENTS

SIMULATED PERFORMANCE
ALTERNATIVE

The permit applicant shall submit documentation signed and sealed by a licensed design professional registered in Maryland, including

1. Address of residence.
2. Inspection checklist documenting the building component characteristics of the proposed design, see Table 404.5.2(1) of IECC.
3. Accurate square footage
4. Mechanical system features.
5. Name of individual completing report.
6. Name and version of the compliance software tool.
7. Name of individual who will do the field inspections and issue the final rating.

2009 IECC Residential Field Inspection Checklist

(In addition to IRC requirements)

Refer to Compliance Certificates for Project-Specific Requirements

Foundation and or Slab/Under-Floor Inspection		
Requirement	Verify	Reference
Slab edge insulation R-value and depth	R-value and depth	(401.3) Approved plans (On-site)
Basement/Below-grade wall insulation	R-value	(401.3) Approved plans (On-site)
Crawl space/Under-floor insulation	R-value	(401.3) Approved plans (On-site)
Duct sealing and insulation	Joint sealing and R-value	(401.3) Approved plans (On-site)
Framing Inspection		
All joints and penetrations are caulked/gasketed		Table 402.4.2
Ductwork sealing and insulation	Verify by pressure test or visual inspection	Third party or visual 403.2
Fenestration air-leakage	By label	To standards (402.4.4)
Fenestration and skylight areas	Area of windows and skylights	Approved plans
Fenestration and skylight U-factors	By label	Approved plans and certificate
Insulation Inspection		
Wall insulation installed	By wall construction type/visual inspection	Approved plans and certificate
Ceilings or roof insulation	Visual inspection	Approved plans and certificate
Vapor barrier	Visual inspection	402.2.9 Crawlspace
Duct sealing and insulation	Visual joint sealing and R-value	IECC/IRC and Certificate (On-site)
Access hatches and doors	Visual/R-value and sealing	402.2.3
Final Inspection		
HVAC system controls	1 thermostat per system, programmable if forced air	403.1.1
Ducts insulation, sealing and tightness	Pressure test when outside thermal envelope	403.2 Third party certification or visual
Building envelope tightness	Blower door test or 402.4.2 verified	Third party or 402.4.2 visual inspection
Recessed lighting	IC rated and sealed (unless in conditioned space)	402.4.2
Lighting	50%/high efficacy, list from electrician/installer	404 or 405 Prescriptive or design
Fireplaces	Visual, gasketed and outdoor air	402.4.3
Mechanical system piping (insulation)	Visual inspection of insulation	403.3
Circulating hot water (insulation/switching)	Visual inspection of insulation and switching	403.4
Mechanical ventilation (dampers)	Visual inspection	403.5
Equipment efficiency	Visual verification	On-site certificate, approved plans
Snow melt systems (if applicable)	Visual inspection	403.8
Heated pools (covers, heaters and switches)	Visual inspection/verification	403.9
Maintenance information	Make certain maintenance documents on site	303.3